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EXAMINER	
LEE, CHRISTOPHER E	

ART UNIT	PAPER NUMBER
2112	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/699,145	KAEWELL ET AL.	
	Examiner	Art Unit	
	Christopher E. Lee	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt Acknowledgement

1. Receipt is acknowledged of the Amendment filed on 25th of October 2004. Claims 1, 9, 15 and 21 have been amended; no claim has been canceled; and claims 24-28 have been newly added since the RCE[2] Non-Final Office Action was mailed on 27th of May 2004. Currently, claims 1-28 are pending in this application.

2. The Amendment document in the Response is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121, as amended on June 30, 2003 (*See 68 Fed. Reg. 38611*, Jun. 30, 2003). In fact, the claim status of the claim 21 is not (Previously presented), but (Currently amended). See MPEP 714 [R-2] and 37 CFR 1.121(c). Appropriate correction is required.

Claim Objections

3. Claims 24 and 28 are objected to because of the following informalities:

In the claim 24, delete "." in line 3.

In the claims 24 and 28, delete "the" at the end of the line 4, respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims 24 and 25 recite the subject matter "the first station" in line 4 of the claim 24, and in line 3 of the claim 25, and the subject matter "the second station" in lines 7-8 of the claim 24, and in line 8 of the claim 25, respectively. There is insufficient antecedent basis for these subject matters in the

claim, respectively. Therefore, the term "the first station" could be considered as --a first station--, and the term "the second station" could be considered as --a second station-- since they are not clearly defined in the claims, respectively.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig et al. [US 6,101,198 A; hereinafter Koenig] in view of Applicant Admitted Prior Art [hereinafter AAPA].

Referring to claim 1, Koenig discloses a modem interface (i.e., processor based voice and data TSI system 20 of Fig. 4) for transferring data (See col. 1, lines 4-10) between a first high data rate interface (i.e., T-1 48 of Fig. 4) and a second high data rate interface (i.e., T-1 50 of Fig. 4), said modem interface comprising: a plurality of parallel data highways (i.e., PCM highways 36, 38, 40, 42, 52, 54, 56, 58 and V.35 high-speed serial port 64 in Fig. 4, in parallel) having frames with time slots for transferring data (See col. 8, lines 9-23 and col. 9, lines 38-62), said plurality of parallel data highways outputting (e.g., framing by Framer 60 of Fig. 4) data to said first and second high data rate interfaces (e.g., T-1 48 and T-1 50, respectively, in Fig. 4) in selected time slots (See col. 11, lines 43-50), each parallel data highway being at least partially dedicated to a separate function (See col. 7, lines 14-56 and 64-67; i.e., wherein in fact that (1) two PCM highways (i.e., 36 and 38 in Fig. 4) come from a pair of conventional T-1 lines via conventional framers, which provide signal conditioning and strip the frame bit, (2) the other two PCM highways (i.e., 40 and 42 in Fig. 4) are created by FX cards, which convert a plurality of analog phone lines to digital and multiplex these digital representations, among other things, (3) two of PCM highways (i.e., 52 and 54 in Fig. 4) are connected to the framers, (4) the other two PCM highways (i.e., 56 and 58 in Fig. 4) connect to FX cards, which demultiplex the signals and convert to analog phone

lines, and (5) the built-in V.35 DCE data port is dedicated to Internet, video, or WAN implies each parallel data highway being at least partially dedicated to a separate function); at least one of said parallel data highways (e.g., PCM highway 36 in Fig. 4) receiving data from said first high data rate interface (i.e., T-1 48 of Fig. 4); at least one of said parallel data highways (e.g., PCM highway 38 in Fig. 4) having an input (e.g., Framer 44 of Fig. 4) configured to receive data from said second high data rate interface (i.e., T-1 50 of Fig. 4) in selected time slots (See col. 11, lines 43-50); and a first processor (i.e., DSP (Engine) 24 of Fig. 4) for controlling data transfer between said plurality of parallel data highways (See col. 11, lines 58-65) and sending data using a sub-plurality of said parallel data highways (i.e., sending analog data using a sub-plurality of PCM highways 56, 58, and sending digital data using another sub-plurality of PCM highways 52, 54); and a second processor (i.e., DSP (Host) 22 of Fig. 4) sending data (e.g., data for Internet, video, or WAN applications; See col. 7, lines 65-67) using a single one of said parallel data highways (i.e., V.35 high-speed serial port 64 in Fig. 4); and one of said first and second processors slaved to the other of said first and second processors (See col. 11, lines 34-57; i.e., DSP (Engine) 24 is slaved by DSP (Host) 22 because the contents of the connection array, which are in the DSP (Engine) 24, controlled by remote monitoring switching provided by DSP (Host) 22 in Figs. 4 and 9); and said two processors (i.e., DSP (Host) 22 and DSP (Engine) 24 in Fig. 4) using said parallel data highways (i.e., said DSP (Host) 22 is using PCM highways 36, 38, 40, 42, 52, 54, 56, 58 of said parallel highways and DSP (Engine) 24 is using V.35 high-speed serial port 64 of said parallel highways in Fig. 4) at said first high data rate interface (i.e., at T-1 48 of Fig. 4) and thereby communicating at a high data rate using said parallel data highways (i.e., said DSP (Engine) and DSP(Host) could perform communicating at a high data rate using said PCM highways and said V.35 high-speed serial port in Fig 4).

Koenig does not expressly teach said second high data rate interface is a wireless interface.

AAPA discloses a modem interface (See MODEM interface 34 of Fig. 1 and page 1, line 8 through page 2, line 10), wherein said modem interface for transferring data (See page 1, lines 8-10) between an user terminal 46 (Fig. 1) and a second high data rate interface, which is a wireless interface (i.e., wireless air interface 38 of Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted said wireless interface, as disclosed by AAPA, for said second high data rate interface, as disclosed by Koenig, for the advantage of transferring data between wired components of the network and a wireless communication network (See AAPA, page 1, lines 8-13).

Referring to claim 8, Koenig, as modified by AAPA, teaches said frames have time slots (See the above prior claim 1 rejection), but does not expressly teach said frames have sixteen time slots. However, the claim recites said sixteen time slots without any patentable advantage in the specification (See claim 8 and Application, page 4, line 17). In other words, the Applicant states a preferred frame would have sixteen (16) time slots, which means said specific number of time slots (16) in a frame is chosen among any number of time slots per frame as a preference of one of ordinary skill in the art. Therefore, the limitation of said sixteen time slots in the claim is not patentably significant since it at most relates to the number of time slots in a frame under consideration which is not ordinarily a matter of invention. *In re Yount, 36 C.C.P.A. (Patents) 775, 171 F2.2d 317, 80 USPQ 141.*

Referring to claim 9, Koenig discloses a method for transferring data (See col. 1, lines 4-10) between a first high data rate interface (i.e., T-1 48 of Fig. 4) and a second high data rate interface (i.e., T-1 50 of Fig. 4), said method comprising: a modem interface (i.e., processor based voice and data TSI system 20 of Fig. 4) provides a plurality of parallel data highways (i.e., PCM highways 36, 38, 40, 42, 52, 54, 56, 58 and V.35 high-speed serial port 64 in Fig. 4, in parallel) having frames with time slots for transferring data (See col. 8, lines 9-23 and col. 9, lines 38-62), each parallel data highway being at least partially dedicated to a separate function (See col. 7, lines 14-56 and 64-67; i.e., wherein in fact that (1)

two PCM highways (i.e., 36 and 38 in Fig. 4) come from a pair of conventional T-1 lines via conventional framers, which provide signal conditioning and strip the frame bit, (2) the other two PCM highways (i.e., 40 and 42 in Fig. 4) are created by FX cards, which convert a plurality of analog phone lines to digital and multiplex these digital representations, among other things, (3) two of PCM highways (i.e., 52 and 54 in Fig. 4) are connected to the framers, (4) the other two PCM highways (i.e., 56 and 58 in Fig. 4) connect to FX cards, which demultiplex the signals and convert to analog phone lines, and (5) the built-in V.35 DCE data port is dedicated to Internet, video, or WAN implies each parallel data highway being at least partially dedicated to a separate function); inputting data (e.g., via Framer 44 of Fig. 4) to said parallel data highways (e.g., PCM highways 36 and 38 in Fig. 4) from said first and second high data rate interfaces (i.e., T-1 48 and T-1 50 in Fig. 4) in selected time slots (See col. 11, lines 43-50); controlling data transfer between said plurality of highways (See col. 11, lines 58-65); and outputting data (e.g., via Framer 60 of Fig. 4) to said first and second high data rate interfaces (i.e., T-1 48 and T-1 50 in Fig. 4) in selected time slots (See col. 11, lines 43-50); and wherein one of said plurality of parallel data highways (e.g., PCM highway 36 in Fig. 4) only receives data from said first high data rate interface (i.e., T-1 48 of Fig. 4) and a first processor (i.e., DSP (Engine) 24 of Fig. 4) for sending data using a sub-plurality of said parallel data highways (i.e., sending analog data using a sub-plurality of PCM highways 56, 58, and sending digital data using another sub-plurality of PCM highways 52, 54) and a second processor (i.e., DSP (Host) 22 of Fig. 4) sending data (e.g., data for Internet, video, or WAN applications; See col. 7, lines 65-67) using a single one of said parallel data highways (i.e., V.35 high-speed serial port 64 in Fig. 4); and one of said first and second processors slaved to the other of said first and second processors (See col. 11, lines 34-57; i.e., DSP (Engine) 24 is slaved by DSP (Host) 22 because the contents of the connection array, which are in the DSP (Engine) 24, controlled by remote monitoring switching provided by DSP (Host) 22 in Figs. 4 and 9), and said two processors (i.e., DSP (Host) 22 and DSP (Engine) 24 in Fig. 4) using said parallel data highways (i.e., said DSP (Host) 22 is using PCM highways 36, 38, 40, 42,

52, 54, 56, 58 of said parallel highways and DSP (Engine) 24 is using V.35 high-speed serial port 64 of said parallel highways in Fig. 4) at said first high data rate interface (i.e., at T-1 48 of Fig. 4) and thereby communicating at a high data rate using said parallel data highways (i.e., said DSP (Engine) and DSP(Host) could perform communicating at a high data rate using said PCM highways and said V.35 high-speed serial port in Fig 4).

Koenig does not expressly teach said second high data rate interface is a wireless interface.

AAPA discloses a modem interface (See MODEM interface 34 of Fig. 1 and page 1, line 8 through page 2, line 10), wherein said modem interface for transferring data (See page 1, lines 8-10) between an user terminal 46 (Fig. 1) and a second high data rate interface, which is a wireless interface (i.e., wireless air interface 38 of Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted said wireless interface, as disclosed by AAPA, for said second high data rate interface, as disclosed by Koenig, for the advantage of transferring data between wired components of the network and a wireless communication network (See AAPA, page 1, lines 8-13).

Referring to claims 4 and 12, Koenig teaches said plurality of parallel data highways include three parallel data highways (i.e., N number of parallel data highways; See col. 9, lines 42-51).

Referring to claims 5 and 13, Koenig, as modified by AAPA, does not teach said each of said three parallel data highways has a 2 Mb/s data rate, but Koenig teaches each of said N parallel data highways has a 1.544 Mb/s (See Koenig , col. 9, lines 42-51).

However, the claim recites said 2 Mb/s data rate without any patentable advantage in the specification (See claim 5 and Application, page 4, lines 18-19). In other words, the Applicant states each parallel data highway has an associated maximum data rate, such as 2 Mb/s (See Application, page 4, lines 18-19) for the combined data rate becomes 3 times faster data rate than a single data highway data rate (See Application, page 4, lines 19-21), which means said specific 2 Mb/s data rate is chosen among any data

rate of a specific type of data highway for said modem interface (See Application, page 4, lines 21-23). Therefore, the limitation of said 2 Mb/s data rate in the claim is not patentably significant since it at most relates to the data rate of a specific data highway for the data rate matters under consideration which is not ordinarily a matter of invention. *In re Yount, 36 C.C.P.A. (Patents) 775, 171 F2.2d 317, 80 USPQ 141.*

Referring to claim 15, Koenig discloses a radio network terminal (RNT; i.e., processor based voice and data TSI system 20 of Fig. 4) for transferring data (See col. 1, lines 4-10) between a first high data rate interface (i.e., T-1 48 of Fig. 4) and a second high data rate interface (i.e., T-1 50 of Fig. 4), said RNT comprising: an input and an output for transferring data over said first high data rate interface (See T-1 50 and Framers 44 & 60 in Fig. 4); a plurality of parallel data highways (i.e., PCM highways 36, 38, 40, 42, 52, 54, 56, 58 and V.35 high-speed serial port 64 in Fig. 4, in parallel) having frames with time slots for transferring data (See col. 8, lines 9-23 and col. 9, lines 38-62), said plurality of parallel data highways outputting (e.g., framing by Framer 60 of Fig. 4) data to said first and second high data rate interfaces (e.g., T-1 48 and T-1 50, respectively, in Fig. 4) in selected time slots (See col. 11, lines 43-50), each parallel data highway being at least partially dedicated to a separate function (See col. 7, lines 14-56 and 64-67; i.e., wherein in fact that (1) two PCM highways (i.e., 36 and 38 in Fig. 4) come from a pair of conventional T-1 lines via conventional framers, which provide signal conditioning and strip the frame bit, (2) the other two PCM highways (i.e., 40 and 42 in Fig. 4) are created by FX cards, which convert a plurality of analog phone lines to digital and multiplex these digital representations, among other things, (3) two of PCM highways (i.e., 52 and 54 in Fig. 4) are connected to the framers, (4) the other two PCM highways (i.e., 56 and 58 in Fig. 4) connect to FX cards, which demultiplex the signals and convert to analog phone lines, and (5) the built-in V.35 DCE data port is dedicated to Internet, video, or WAN implies each parallel data highway being at least partially dedicated to a separate function); at least one of said parallel data highways (e.g., PCM highway 36 in Fig. 4) only receiving data from said first high data

rate interface (i.e., T-1 48 of Fig. 4); at least one of said parallel data highways (e.g., PCM highway 38 in Fig. 4) having an input (e.g., Framer 44 of Fig. 4) configured to receive data from said second high data rate interface (i.e., T-1 50 of Fig. 4) in selected time slots (See col. 11, lines 43-50); a first processor (i.e., DSP (Engine) 24 of Fig. 4) for controlling data transfer between said plurality of highways (See col. 11, lines 58-65) and sending data using a sub-plurality of said parallel data highways (i.e., sending analog data using a sub-plurality of PCM highways 56, 58, and sending digital data using another sub-plurality of PCM highways 52, 54); and a second processor (i.e., DSP (Host) 22 of Fig. 4) sending data (e.g., data for Internet, video, or WAN applications; See col. 7, lines 65-67) using a single one of said parallel data highways (i.e., V.35 high-speed serial port 64 in Fig. 4); one of said first and second processors slaved to the other of said first and second processors (See col. 11, lines 34-57; i.e., DSP (Engine) 24 is slaved by DSP (Host) 22 because the contents of the connection array, which are in the DSP (Engine) 24, controlled by remote monitoring switching provided by DSP (Host) 22 in Figs. 4 and 9); and said two processors (i.e., DSP (Host) 22 and DSP (Engine) 24 in Fig. 4) using said parallel data highways (i.e., said DSP (Host) 22 is using PCM highways 36, 38, 40, 42, 52, 54, 56, 58 of said parallel highways and DSP (Engine) 24 is using V.35 high-speed serial port 64 of said parallel highways in Fig. 4) at said first high data rate interface (i.e., at T-1 48 of Fig. 4) and thereby communicating at a high data rate using said parallel data highways (i.e., said DSP (Engine) and DSP(Host) could perform communicating at a high data rate using said PCM highways and said V.35 high-speed serial port in Fig 4).

Koenig does not expressly teach said second high data rate interface is a wireless interface; and a receiver and a transmitter for transferring data over said wireless interface.

AAPA discloses a modem (MODEM 28 of Fig. 1), wherein said modem for transferring data (See page 1, lines 8-10) between an user terminal 46 (Fig. 1) and a second high data rate interface, which is a wireless interface (i.e., wireless air interface 38 of Fig. 1); and a receiver (i.e., receive circuitry 32 of Fig. 1) and a

transmitter (i.e., transmit circuitry 36 of Fig. 1) for transferring data over said wireless interface (See page 1, lines 17-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said transmitter and said receiver, as disclosed by AAPA, in said radio network terminal, as disclosed by Koenig, for the advantage of transferring data between wired components of the network and a wireless communication network (See AAPA, page 1, lines 8-13).

Referring to claim 18, Koenig, as modified by AAPA, teaches said frames have time slots (See the above prior claim 15 rejection), but does not expressly teach said frames have sixteen time slots. However, the claim recites said sixteen time slots without any patentable advantage in the specification (See claim 8 and Application, page 4, line 17). In other words, the Applicant states a preferred frame would have sixteen (16) time slots, which means said specific number of time slots (16) in a frame is chosen among any number of time slots per frame as a preference of one of ordinary skill in the art. Therefore, the limitation of said sixteen time slots in the claim is not patentably significant since it at most relates to the number of time slots in a frame under consideration which is not ordinarily a matter of invention. *In re Yount, 36 C.C.P.A. (Patents) 775, 171 F2.2d 317, 80 USPQ 141.*

Referring to claim 19, Koenig teaches said plurality of parallel data highways include three parallel data highways (i.e., N number of parallel data highways; See col. 9, lines 42-51).

8. Claims 2, 3, 10, 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig [US 6,101,198 A] in view of AAPA as applied to claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 above, and further in view of Mergard et al. [US 6,415,348 B1; hereinafter Mergard].

Referring to claims 2, 3, 10 and 11, Koenig, as modified by AAPA, discloses all the limitations of the claims 2, 3, 10 and 11, respectively, except that does not teach said first high data rate interface is an IOM-2 highway or a PCM highway.

Mergard teaches a High-Level Data Link Controller (viz., HDLC controller), wherein Channels of HDLC controller can be coupled to a first high data rate interface (i.e., means for communicating) is an IOM-2 highway or a PCM highway (See col. 1, lines 20-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said HDLC controller, as disclosed by Mergard, in said modem interface, as disclosed by Koenig, as modified by AAPA, for the advantage of providing a broad range of communications applications (See Mergard, col. 1, lines 25-27).

Referring to claim 20, Koenig, as modified by AAPA, discloses all the limitations of the claim 20, except that does not teach said first high data rate interface is an IOM-2 highway.

Mergard teaches a High-Level Data Link Controller (viz., HDLC controller), wherein Channels of HDLC controller can be coupled to a first high data rate interface (i.e., means for communicating) is an IOM-2 highway (See col. 1, lines 20-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said HDLC controller, as disclosed by Mergard, in said radio network terminal, as disclosed by Koenig, as modified by AAPA, for the advantage of providing a broad range of communications applications (See Mergard, col. 1, lines 25-27).

9. Claims 6, 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig [US 6,101,198 A] in view of AAPA as applied to claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 above, and further in view of Beyda et al. [US 6,058,111 A; hereinafter Beyda].

Referring to claim 6, Koenig, as modified by AAPA, discloses all the limitations of the claim 6 except that does not teach a plurality of read and write devices, each write device fixedly writing to one of said plurality of parallel data highways and each read device reading data from any of said plurality of parallel data highways.

Beyda discloses a network (5000 of Fig. 3) in a system for providing a droppable switched circuit, wherein a plurality of time slot interchangers (i.e., TSIs in Fig.5) comprise: a plurality of read and write devices (i.e., a plurality of TSI input circuits 5200 and TSI output circuits 5600 in Fig. 5), each write device (i.e., TSI output circuit) fixedly writing to one of a plurality of parallel data highways (i.e., fixedly outputting to a group of port controllers among a plurality of port controllers 4000-0 through 4000-31in Fig. 1) and each read device (i.e., TSI input circuit) reading (i.e., inputting) data from any of said plurality of parallel data highways (i.e., inputting from any of port controllers among a plurality of port controllers 4000-0 through 4000-31in Fig. 1). Refer to col. 6, lines 22-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined said time slot interchanges (i.e., TSIs), as disclosed by Beyda, in said processor in said modem interface, as disclosed by Koenig, as modified by AAPA, for the advantage of being required to transmit only $1/N^{th}$ (e.g., $1/8^{th}$) of received data (i.e., received digital words), where N is a number of TSI units (e.g., TSI units) during a given frame (See Beyda, col. 6, lines 27-32).

Referring to claim 7, Koenig, as modified by AAPA and Beyda, teaches said processor (i.e., TSI control circuit 5400 of Fig. 5; Beyda) controls each read device (i.e., TSI input circuit; Beyda) so that each read device reads from a selected one of said parallel data highways (i.e., so that input TSI input circuits' data from a selected one of said parallel data highways via SRC ADRS 5487 of Fig. 5; See Beyda, col. 7, lines 35-41).

Referring to claim 14, Koenig, as modified by AAPA, discloses all the limitations of the claim 14 except that does not teach said the step of controlling includes using a plurality of read and write devices, each write device fixedly writes to one of said plurality of parallel data highways and each read device is capable of reading data from any of said plurality of parallel data highways.

Beyda discloses a network (5000 of Fig. 3) in a system for providing a droppable switched circuit, wherein a step of controlling (See Fig. 3 and 5) includes using a plurality of time slot interchangers (i.e.,

TSIs in Fig.5) comprising a plurality of read and write devices (i.e., a plurality of TSI input circuits 5200 and TSI output circuits 5600 in Fig. 5), each write device (i.e., TSI output circuit) fixedly writes to one of a plurality of parallel data highways (i.e., fixedly outputs to a group of port controllers among a plurality of port controllers 4000-0 through 4000-31in Fig. 1) and each read device (i.e., TSI input circuit) is capable of reading (i.e., inputting) data from any of said plurality of parallel data highways (i.e., inputting from any of port controllers among a plurality of port controllers 4000-0 through 4000-31in Fig. 1). Refer to col. 6, lines 22-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined said time slot interchanges (i.e., TSIs), as disclosed by Beyda, in said means for transferring data, as disclosed by Koenig, as modified by AAPA, for the advantage of being required to transmit only $1/N^{th}$ (e.g., $1/8^{th}$) of received data (i.e., received digital words), where N is a number of TSI units (e.g., TSI units) during a given frame (See Beyda, col. 6, lines 27-32).

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig [US 6,101,198 A] in view of AAPA as applied to claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 above, and further in view of Rouphael et al. [US 6,301,291 B1; hereinafter Rouphael].

Referring to claim 16, Koenig, as modified by AAPA, discloses all the limitations of the claim 16 except that does not teach said receiver and said transmitter transfer data using QPSK modulation in CDMA format.

Rouphael discloses a wireless communication systems, wherein a receiver (i.e., Receiver 20 of Fig. 1A) and a transmitter (i.e., Transmitter 10 of Fig. 1A) transfer data using QPSK modulation in CDMA format (See Fig. 1 and col. 2, lines 18-42 and col. 3, line 38 through col. 4, line 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied said QPSK modulation in CDMA format, as disclosed by Rouphael, to said receiver and transmitter, as disclosed by Koenig, as modified by AAPA, so as to modulate/demodulate using

QSPK in CDMA format with the advantage of improving data reception (See Rouphael, col. 2, lines 7-13).

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig [US 6,101,198 A] in view of AAPA as applied to claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 above, and further in view of Cannella et al. [US 5,063,592; hereinafter Cannella].

Referring to claim 17, Koenig, as modified by AAPA, discloses all the limitations of the claim 17 except that does not teach said RNT is operatively coupled to an ISDN terminal via said first high data rate interface.

Cannella discloses a foreign exchange 110 (Fig. 1), wherein an RNT (i.e., switch 112 of Fig. 1) is operatively coupled to an ISDN terminal (i.e., ISDN set 120 of Fig. 1) via a first high data rate interface (i.e., carrier T-1 line 130 of Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have coupled said ISDN terminal with its ISDN interface, as disclosed by Cannella, to said radio network terminal via said first high data rate interface, as disclosed by Koenig, as modified by AAPA, for the advantages of providing both local (i.e., communication among ISDN terminals via ISDN interface, locally) and said wireless communication service (i.e., foreign exchange services) by said single first high data rate interface (i.e., single subscriber line). Refer to Cannella, col. 2, lines 29-31.

12. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pillan et al. [US 5,483,556 A; hereinafter Pillan] in view of Shimizu [US 5,381,422 A] and AAPA.

Referring to claim 21, Pillan discloses a method for data compression/decompression for a HDLC type frame (See col. 1, lines 8-9 and col. 2, lines 24-34), comprising: producing data (i.e., deriving a first reduced data frame) having a first high-level data link controlling (HDLC) encoding (See col. 2, lines 55-57) at a first station (i.e., EMISSION side in Fig. 4) for transfer over a wireless interface (i.e., transmission network 3 of Fig. 2); compressing said first HDLC encoded data (i.e., said first reduced data

frame) into a second HDLC format (i.e., a first compressed reduced data frame) at said first station (i.e., EMISSION side); transmitting said compressed said first HDLC encoded data (i.e., said compressed reduced data frame) over said wireless interface (See col. 2, lines 61-65); receiving (i.e., restoring) said compressed said first HDLC encoded data at a second station (i.e., RECEPTION side in Fig. 4; See col. 2, line 65 through col. 3, line 2); and removing (i.e., decompressing) said HDLC compressing (i.e., said first reduced data frame) to recover said first HDLC encoded data (i.e., an original first data frame; See col. 3, lines 3-8) at said second station.

Pillan does not expressly teach encoding said first HDLC encoded data into a second HDLC format at said first station such that said produced data is double HDLC encoded; transmitting said double HDLC encoded data; receiving said double HDLC encoded data at said second station; and removing said second HDLC encoding to recover said first HDLC encoded data at said second station, said first HDLC encoding and said second HDLC encoding facilitating error correction over said wireless interface while providing for said integrity of first HDLC encoded data over said wireless interface.

Shimizu discloses a device for correcting code error (See Abstract and col. 1, lines 9-13), wherein said device performs a step of encoding a first HDLC encoded data (i.e., DPCM data train converted by block 32 from information signal of input terminal 30 in Fig. 2A) into a second HDLC format (i.e., encoded by block 12 for error correction encoding in Fig. 2A) at a first station (i.e., recording system in a data transmitting system in Fig. 2A) such that a produced data is double HDLC encoded (See col. 2, lines 59-62); transmitting said double HDLC encoded data (See col. 3, lines 27-31); receiving said double HDLC encoded data at a second station (i.e., reproducing system in a data transmitting system in Fig. 2B); and removing said second HDLC encoding to recover said first HDLC encoded data at said second station (See col. 3, lines 35-46), said first HDLC encoding and said second HDLC encoding facilitating error correction (See col. 3, lines 6-11) over a wireless interface (i.e., transmission path Figs. 1A-B, and 2A-B)

while providing for an integrity of first HDLC encoded data (See col. 6, lines 37-43) over said wireless interface (i.e., transmission path).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said double encoding/decoding scheme, as disclosed by Shimizu, in said method of communicating data, as disclosed by Pillan, for the advantage of providing a code error correcting feature in which a high processing speed (See Shimizu, col. 1, line 67 through col. 2, line 3).

Pillan, as modified by Shimizu, does not expressly teach said method of communicating data over said wireless interface of a wireless communication network having said first station and said second station.

AAPA teaches a method of communicating data (See Background and Fig. 1) over a wireless interface (i.e., wireless air interface 38 of Fig. 1) of a wireless communication network (Fig. 1) having a first station and a second station (i.e., Radio Network Terminal 40 and Radio Carrier Station 26 in Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied said method of communicating data, as disclosed by Pillan, as modified by Shimizu, to said data communication of said wireless communication network, as disclosed by AAPA, for the advantage of transferring data between wired components of the network and a wireless communication network (See AAPA, page 1, lines 8-13) for complying with a recommendation of reduced transmission line occupancy (See Pillan, col. 1, lines 12-21).

13. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillan [US 5,483,556 A] in view of Shimizu [US 5,381,422 A] and AAPA as applied to claim 21 above, and further in view of Mergard [US 6,415,348 B1].

Referring to claim 22, Pillan, as modified by Shimizu and AAPA, discloses all the limitations of the claim 22 including said first communication station is a radio network terminal (i.e., Radio Network Terminal 40 of Fig. 1; AAPA) and said second station is a radio carrier station (i.e., Radio Carrier Station

26 of Fig. 1; AAPA) except that does not teach prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from an IOM-2 highway.

Mergard teaches a High-Level Data Link Controller (viz., HDLC controller), wherein Channels of HDLC controller can be coupled to a radio network terminal (i.e., Radio Network Terminal) is an IOM-2 highway (See col. 1, lines 20-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said HDLC controller, as disclosed by Mergard, in said RNT, as disclosed by Pillan, as modified by Shimizu and AAPA, for the advantage of providing a broad range of communications applications (See Mergard, col. 1, lines 25-27).

Pillan, as modified by Shimizu, AAPA and Mergard, teaches prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from said IOM-2 highway.

Referring to claim 23, Pillan, as modified by Shimizu and AAPA, discloses all the limitations of the claim 23 including said first station is a radio carrier station (i.e., Radio Carrier Station 26 of Fig. 1; AAPA) and said second station is a radio network terminal (i.e., Radio Network Terminal 40 of Fig. 1; AAPA) except that does not teach prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from an PCM highway.

Mergard teaches a High-Level Data Link Controller (viz., HDLC controller), wherein Channels of HDLC controller can be coupled to a radio carrier station (i.e., Radio Carrier Station) is an PCM highway (See col. 1, lines 20-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said HDLC controller, as disclosed by Mergard, in said RCS, as disclosed by Pillan, as modified by Shimizu and AAPA, for the advantage of providing a broad range of communications applications (See Mergard, col. 1, lines 25-27).

Pillan, as modified by Shimizu, AAPA and Mergard, teaches prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from said PCM highway.

14. Claims 24, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig [US 6,101,198 A] in view of AAPA as applied to claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 above, and further in view of Pillan [US 5,483,556 A] and Shimizu [US 5,381,422 A].

Referring to claims 24 and 28, Koenig, as modified by AAPA, discloses all the limitations of the claims 24 and 28, respectively, except that does not teach said modem interface receiving data having a first high-level data link controlling (HDLC) encoding said first HDLC encoded into a second HDLC format at a first station such that said produced data is double HDLC encoded and said double HDLC encoded data transmitted over said wireless interface; and said modem interface receiving said double HDLC encoded data and removing said second HDLC encoding to recover said first HDLC encoded data at a second station, said first HDLC encoding and said second HDLC encoding facilitating error correction over said wireless interface while providing for an integrity of first HDLC encoded data over said wireless interface.

Pillan discloses a data compression/decompression method and apparatus for a HDLC type frame (See col. 1, lines 8-9 and col. 2, lines 24-34), wherein a modem interface (i.e., terminating equipment 2 of Fig. 3) receiving data having a first high-level data link controlling (HDLC) encoding (See col. 2, lines 52-57); and said first HDLC compressing into a second HDLC format (i.e., a first compressed reduced data frame) at a first station (i.e., EMISSION side in Fig. 4); and said modem interface (i.e., terminating equipment) receiving (i.e., restoring) said compressed said first HDLC encoded data and removing (i.e., decompressing) said HDLC compressing (i.e., said first reduced data frame) to recover said first HDLC encoded data (i.e., an original first data frame; See col. 3, lines 3-8) at a second station (i.e., RECEPTION side in Fig. 4; See col. 2, line 65 through col. 3, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said data compression/decompression apparatus, as disclosed by Pillan, in said modem interface, as disclosed by Koenig, as modified by AAPA, for the advantage of providing a method in which the size of data (i.e., frame data) to be compressed is as low as possible (See Pillan, col. 1, lines 45-47).

Koenig, as modified by AAPA and Pillan, does not expressly teach said produced data is double HDLC encoded and said double HDLC encoded data transmitted over said wireless interface; and said modem interface receiving said double HDLC encoded data and removing said second HDLC encoding to recover said first HDLC encoded data at said second station, said first HDLC encoding and said second HDLC encoding facilitating error correction over said wireless interface while providing for an integrity of first HDLC encoded data over said wireless interface.

Shimizu discloses a device for correcting code error (See Abstract and col. 1, lines 9-13), wherein said device performs a step of encoding a first HDLC encoded data (i.e., DPCM data train converted by block 32 from information signal of input terminal 30 in Fig. 2A) into a second HDLC format (i.e., encoded by block 12 for error correction encoding in Fig. 2A) at a first station (i.e., recording system in a data transmitting system in Fig. 2A) such that a produced data is double HDLC encoded (See col. 2, lines 59-62); transmitting said double HDLC encoded data (See col. 3, lines 27-31); receiving said double HDLC encoded data at a second station (i.e., reproducing system in a data transmitting system in Fig. 2B); and removing said second HDLC encoding to recover said first HDLC encoded data at said second station (See col. 3, lines 35-46), said first HDLC encoding and said second HDLC encoding facilitating error correction (See col. 3, lines 6-11) over a wireless interface (i.e., transmission path Figs. 1A-B, and 2A-B) while providing for an integrity of first HDLC encoded data (See col. 6, lines 37-43) over said wireless interface (i.e., transmission path).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said double encoding/decoding scheme, as disclosed by Shimizu, in said method of communicating data, as disclosed by Koenig, as modified by AAPA and Pillan, for the advantage of providing a code error correcting feature in which a high processing speed (See Shimizu, col. 1, line 67 through col. 2, line 3).

Referring to claim 25, Koenig, as modified by AAPA, discloses all the limitations of the claim 25 except that does not teach that producing data having a first high-level data link controlling (HDLC) encoding at a first station for transfer over said wireless interface; encoding said first HDLC encoded data into a second HDLC format at said first station such that said produced data is double HDLC encoded; transmitting said double HDLC encoded data over said wireless interface; receiving said double HDLC encoded data at a second station; and removing said second HDLC encoding to recover said first HDLC encoded data at said second station, said first HDLC encoding and said second HDLC encoding facilitating error correction over said wireless interface while providing for an integrity of first HDLC encoded data over said wireless interface.

Pillan discloses a data compression/decompression method and apparatus for a HDLC type frame (See col. 1, lines 8-9 and col. 2, lines 24-34), wherein producing data (i.e., deriving a first reduced data frame) having a first high-level data link controlling (HDLC) encoding (See col. 2, lines 55-57) at a first station (i.e., EMISSION side in Fig. 4) for transfer over said wireless interface (i.e., transmission network 3 of Fig. 2); compressing said first HDLC encoded data (i.e., said first reduced data frame) into a second HDLC format (i.e., a first compressed reduced data frame) at said first station (i.e., EMISSION side); transmitting said compressed said first HDLC encoded data (i.e., said compressed reduced data frame) over said wireless interface (See col. 2, lines 61-65); receiving (i.e., restoring) said compressed said first HDLC encoded data at a second station (i.e., RECEPTION side in Fig. 4; See col. 2, line 65 through col. 3, line 2); and removing (i.e., decompressing) said HDLC compressing (i.e., said first reduced data frame)

to recover said first HDLC encoded data (i.e., an original first data frame; See col. 3, lines 3-8) at said second station.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said data compression/decompression method, as disclosed by Pillan, in said method of communicating data, as disclosed by Koenig, as modified by AAPA, for the advantage of providing a method in which the size of data (i.e., frame data) to be compressed is as low as possible (See Pillan, col. 1, lines 45-47).

Koenig, as modified by AAPA and Pillan, does not expressly teach encoding said first HDLC encoded data into a second HDLC format at said first station such that said produced data is double HDLC encoded; transmitting said double HDLC encoded data; receiving said double HDLC encoded data at said second station; and removing said second HDLC encoding to recover said first HDLC encoded data at said second station, said first HDLC encoding and said second HDLC encoding facilitating error correction over said wireless interface while providing for said integrity of first HDLC encoded data over said wireless interface.

Shimizu discloses a device for correcting code error (See Abstract and col. 1, lines 9-13), wherein said device performs a step of encoding a first HDLC encoded data (i.e., DPCM data train converted by block 32 from information signal of input terminal 30 in Fig. 2A) into a second HDLC format (i.e., encoded by block 12 for error correction encoding in Fig. 2A) at a first station (i.e., recording system in a data transmitting system in Fig. 2A) such that a produced data is double HDLC encoded (See col. 2, lines 59-62); transmitting said double HDLC encoded data (See col. 3, lines 27-31); receiving said double HDLC encoded data at a second station (i.e., reproducing system in a data transmitting system in Fig. 2B); and removing said second HDLC encoding to recover said first HDLC encoded data at said second station (See col. 3, lines 35-46), said first HDLC encoding and said second HDLC encoding facilitating error correction (See col. 3, lines 6-11) over a wireless interface (i.e., transmission path Figs. 1A-B, and 2A-B)

while providing for an integrity of first HDLC encoded data (See col. 6, lines 37-43) over said wireless interface (i.e., transmission path).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said double encoding/decoding scheme, as disclosed by Shimizu, in said method of communicating data, as disclosed by Koenig, as modified by AAPA and Pillan, for the advantage of providing a code error correcting feature in which a high processing speed (See Shimizu, col. 1, line 67 through col. 2, line 3).

15. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig [US 6,101,198 A] in view of AAPA, Pillan [US 5,483,556 A] and Shimizu [US 5,381,422 A] as applied to claims 24 and 25 above, and further in view of Mergard [US 6,415,348 B1].

Referring to claim 26, Koenig, as modified by AAPA, Pillan and Shimizu, discloses all the limitations of the claim 26 including said first communication station is a radio network terminal (i.e., Radio Network Terminal 40 of Fig. 1; AAPA) and said second station is a radio carrier station (i.e., Radio Carrier Station 26 of Fig. 1; AAPA) except that does not teach prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from an IOM-2 highway.

Mergard teaches a High-Level Data Link Controller (viz., HDLC controller), wherein Channels of HDLC controller can be coupled to a radio network terminal (i.e., Radio Network Terminal) is an IOM-2 highway (See col. 1, lines 20-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said HDLC controller, as disclosed by Mergard, in said RNT, as disclosed by Koenig, as modified by AAPA, Pillan and Shimizu, for the advantage of providing a broad range of communications applications (See Mergard, col. 1, lines 25-27).

Koenig, as modified by AAPA, Pillan, Shimizu and Mergard, teaches prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from said IOM-2 highway.

Referring to claim 27, Koenig, as modified by AAPA, Pillan and Shimizu, discloses all the limitations of the claim 27 including said first station is a radio carrier station (i.e., Radio Carrier Station 26 of Fig. 1; AAPA) and said second station is a radio network terminal (i.e., Radio Network Terminal 40 of Fig. 1; AAPA) except that does not teach prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from an PCM highway.

Mergard teaches a High-Level Data Link Controller (viz., HDLC controller), wherein Channels of HDLC controller can be coupled to a radio carrier station (i.e., Radio Carrier Station) is an PCM highway (See col. 1, lines 20-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said HDLC controller, as disclosed by Mergard, in said RCS, as disclosed by Koenig, as modified by AAPA, Pillan and Shimizu, for the advantage of providing a broad range of communications applications (See Mergard, col. 1, lines 25-27).

Koenig, as modified by AAPA, Pillan, Shimizu and Mergard, teaches prior to producing said first HDLC encoded data, receiving said first HDLC encoded data from said PCM highway.

Response to Arguments

16. Applicants' arguments filed on 25th of October 2004 (hereinafter the Response) have been fully considered but they are not persuasive.

In response to the Applicants' argument with respect to "As previously indicated, the invention provides the advantage of two processors using parallel data highways outputting to a high data rate interface. ... In contrast, Koenig, et al. shows a single field programmable gate array (FPGA) 34. ... All of this is separate from the operation of the present invention, which uses the parallel data highways to transfer data to a wireless interface. This is in concept and function contradictory to Koenig's device for transferring data to through a single processor to multiple T-1 frame relay connections. Koenig, et al.

mention a radio link but do not suggest using parallel data highways in association with a radio link." on the Response page 13, lines 3-19, the Examiner respectfully disagrees.

In contrary to the Applicants' statement, Koenig suggests the claimed limitations, such that DSP (Host) 22 and DSP (Engine) 24 (i.e., two processors) using PCM highways 36, 38, 40, 42, 52, 54, 56, 58 of said parallel highways by said DSP (Host) 22, and using V.35 high-speed serial port 64 of said parallel highways by DSP (Engine) 24 (i.e., using said parallel data highways) at T-1 48 (i.e., at high data rate interface) and thereby communicating at a high data rate using said PCM highways 36, 38, 40, 42, 52, 54, 56, 58 and V.35 high-speed serial port 64 (i.e., parallel data highways) in Fig. 4. In other words, said DSP (Engine) and DSP(Host) could perform communicating at a high data rate using said PCM highways and said V.35 high-speed serial port.

Furthermore, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, the combination of Koenig and AAPA with rationale for the proper combining shows the obviousness of the claimed invention, such as "using parallel data highways in association with a radio link, i.e., wireless interface." Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Specifically, Applicants describe the use of an ISDN interface but separate from the wireless interface. ...Looking at the cited section of the Applicant's prior art descriptions, the use of wireless modems is described. While a frame relay may be considered to be a type of modem, there is no suggestion anywhere in either the prior art descriptions or the cited references that dual processors be used to achieve a function performed by a frame relay. There also is no suggestion in the prior art of record to use two processors for separate data highways. ... Furthermore there is no suggestion that such a configuration include multiple data processors. Even if the use of a wireless modem can be associated with a T-1 frame relay connection, the use of multiple

processors in combination with a wireless modem is neither shown nor suggested by any combination of the prior art of record." on the Response page 14, line 1 through page 15, line 7, the Examiner respectfully disagrees.

First of all, it is noted that the features upon which applicants rely (i.e., dual processors be used to achieve a function performed by a frame relay, and using two processors for separate highways) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Secondly, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, in contrary to the Applicants' statement, the combination of Koenig and AAPA with rationale for the proper combining shows the obviousness of the claimed invention, such as "the use of multiple processors in combination with a wireless modem." See Paragraph 7 of the instant Office Action, claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 rejection under 35 U.S.C. 103(a) as being unpatentable over Koenig in view of AAPA.

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Further, there is no prior art incentive to modify the prior art T-1 frame relay to accommodate the functions of the present invention. ... In contrast, the user of a frame relay of Koenig, et al. would apply the frame relay either to the T-1 lines or to unused T-1 bandwidth on the T-1 lines. There is no suggestion of applying such a system to wireless technology implemented with parallel data highways. Therefore Koenig, et al. 'teaches away from' the present invention." on the Response page 15, lines 8-17, the Examiner respectfully disagrees.

In contrary to the Applicants' statement, the secondary reference AAPA suggests the claimed subject matter "wireless interface", and the combination of Koenig and AAPA with rationale for the proper

combining shows the obviousness of the claimed invention, such as "a system to wireless technology implemented with parallel data highways." See Paragraph 7 of the instant Office Action, claims 1, 4, 5, 8, 9, 12, 13, 15, 18 and 19 rejection under 35 U.S.C. 103(a) as being unpatentable over Koenig in view of AAPA.

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "It is further noted that, as applied to each of independent claims 1, 9 and 15, the prior art citation of a single gate array describes ... This does not suggest using two processors communicating through a wireless interface using parallel data highways. ..." on the Response page 15, line 18 through page 16, line 11, it is noted that the features upon which applicants rely (i.e., using two processors communicating through a wireless interface using parallel data highways) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Regarding claims 4, 5, 12, 13 and 19, the prior art use of multiple data highways fails to suggest the present invention's claimed use of a wireless interface using separate processors communicating through multiple highways. ... This does not suggest using different processors communicating through a wireless interface using parallel data highways." on the Response page 16, lines 12-18, it is noted that the features upon which applicants rely (i.e., using different processors communicating through a wireless interface using parallel data highways) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Regarding claim 15, Applicants respectfully disagree with the assertion that Koenig, et al. disclose a radio network terminal. ... The rejection of claim 15 goes on to describe particular functions of frame relays, including the ability to send and receive data over the separate T-1 lines. Applying this, a combination of Koenig, et al. with the present invention would enable one to use Applicants' wireless modem interface in a frame relay apparatus. Such a combination would necessarily require Applicants' disclosure and is therefore a "hindsight application" of Applicants' invention." on the Response page 16, line 19 through page 17, line 9, the Examiner believes that the Applicants misinterpret the claim rejection.

The Applicants essentially argue that Koenig does not suggest a radio network terminal (i.e., RNT). However, the recitation in the claim 15, that "a radio network terminal (i.e., RNT)" has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *See Kropa v. Robie, 88 USPQ 478 (CCPA 1951).*

And, in contrary to the Applicants' statement, such that a combination of Koenig with the present invention would enable one to use Applicants' wireless modem interface in a frame relay apparatus, the Examiner's rejection was not based on the wireless modem interface of the Applicants' invention, but the MODEM interface 34 for transferring data between an user terminal 46 and a wireless air interface 38 in Fig. 1 (i.e., the wireless modem interface in the background of the Applicants' invention; See Application, page 1, line 8 through page 2, line 10).

Furthermore, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not

include knowledge gleaned only from the applicant's disclosure (i.e., applicants' invention), such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Claims 2, 3, 10, 11 and 20 were rejected over Koenig, et al., or over Koenig, et al. and Mergard, et al. These rejections are respectfully traversed. While the use of an ION-2 interface or a PCM interface is described, there is no suggestion that a wireless link be used in association with parallel data highways. Accordingly, claims 2, 3, 10, 11 and 20 define patentable subject matter." on the Response page 17, lines 10-14, the Examiner believes that the Applicants misinterpret the claim rejection.

The Applicants essentially argue that Koenig and/or Mergard do not suggest a wireless link be used in association with parallel data highways. However, AAPA teaches the wireless link, and the combination of Koenig, AAPA and Mergard with rationale for the proper combining shows the obviousness of the claimed invention in the claims 2, 3, 10, 11 and 20. See Paragraph 8 of the instant Office Action, claims 2, 3, 10, 11 and 20 rejection under 35 U.S.C. 103(a) as being unpatentable over Koenig in view of AAPA and Mergard.

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Claims 6, 7 and 14 were rejected over Koenig, et al. taken in view of Beyda, et al. This rejection is respectfully traversed. There is no suggestion in Beyda, et al. that a plurality of port controllers be used in association with a wireless interface and parallel data highways operating through a wireless interface. Accordingly, claims 6, 7 and 14 define patentable subject matter." on the Response page 17, lines 15-19, it is noted that the features upon which applicants rely (i.e., a plurality of port controllers be used in association with a wireless interface and parallel data highways operating through a wireless interface) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Claim 16 was rejected over Koenig, et al. taken in view Rouphael, et al. This rejection is respectfully traversed. There is no suggestion in this prior art combination that these references to support the combination as per the elements claim 16." on the Response page 18, lines 1-4, the Applicants' arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claim defines a patentable invention without specifically pointing out how the language of the claim patentably distinguishes them from the references.

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Claim 17 was rejected over Koenig, et al. taken in view of U.S. Patent No. 5,063,592 (Cannella, et al.). These rejections, as applied to the amended claims, are respectfully traversed. As with the other references, there is no suggestion in Cannella, et al. that parallel data ports be combined with a high speed interface. Accordingly, claim 17 is patentable over the cited combination." on the Response page 18, lines 5-9, it is noted that the features upon which applicants rely (i.e., parallel data ports be combined with a high speed interface) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, the Applicants' argument on this point is not persuasive.

In response to the Applicants' argument with respect to "Claim 21 had been rejected over U.S. Patent 5,483,556 (Pillan, et al.), taken in view of U.S. Patent 5,381,422 (Shimizu). This rejection is respectfully traversed. Pillan, et al. describes compression at two levels, although in association with framing and storing of data, but fail to suggest the use of a wireless link. The terminology "data terminal"

is used and cited at column 2, lines 61-65, but this fails to suggest wireless transmission. To the contrary, data terminal equipment (DTE) is generally considered to be a reference to a digital device sending or receiving data over data carrier equipment (DCE). This use of the terminology "data terminal" is not merely speculative, as evidenced by the use of similar DTE/DCE terminology at col. 3, line 65 - col. 4, line 2. Shimizu is cited as showing the use of error correction of data; however, there is no suggestion of the claimed use of a wireless interface. Therefore, the prior art of record, taken alone or in combination, fail to suggest an HDLC interface." on the Response page 13, lines 3-19, the Examiner believes that the Applicants misinterpret the claim rejection.

The Applicants essentially argue that Pillan and/or Shimizu do not suggest a wireless interface be used in association with parallel data highways. However, AAPA teaches the wireless interface, and the combination of Koenig, Pillan, Shimizu and AAPA with rationale for the proper combining shows the obviousness of the claimed invention in the claim 21. See Paragraph 12 of the instant Office Action, claim 21 rejection under 35 U.S.C. 103(a) as being unpatentable over Pillan in view of Shimizu and AAPA.

Furthermore, it is noted that the feature upon which applicants rely (i.e., an HDLC interface) are not recited in the rejected claim. Although the claim is interpreted in light of the specification, limitations from the specification are not read into the claim. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, the Applicants' argument on this point is not persuasive.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 571-272-3637. The examiner can normally be reached on 9:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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